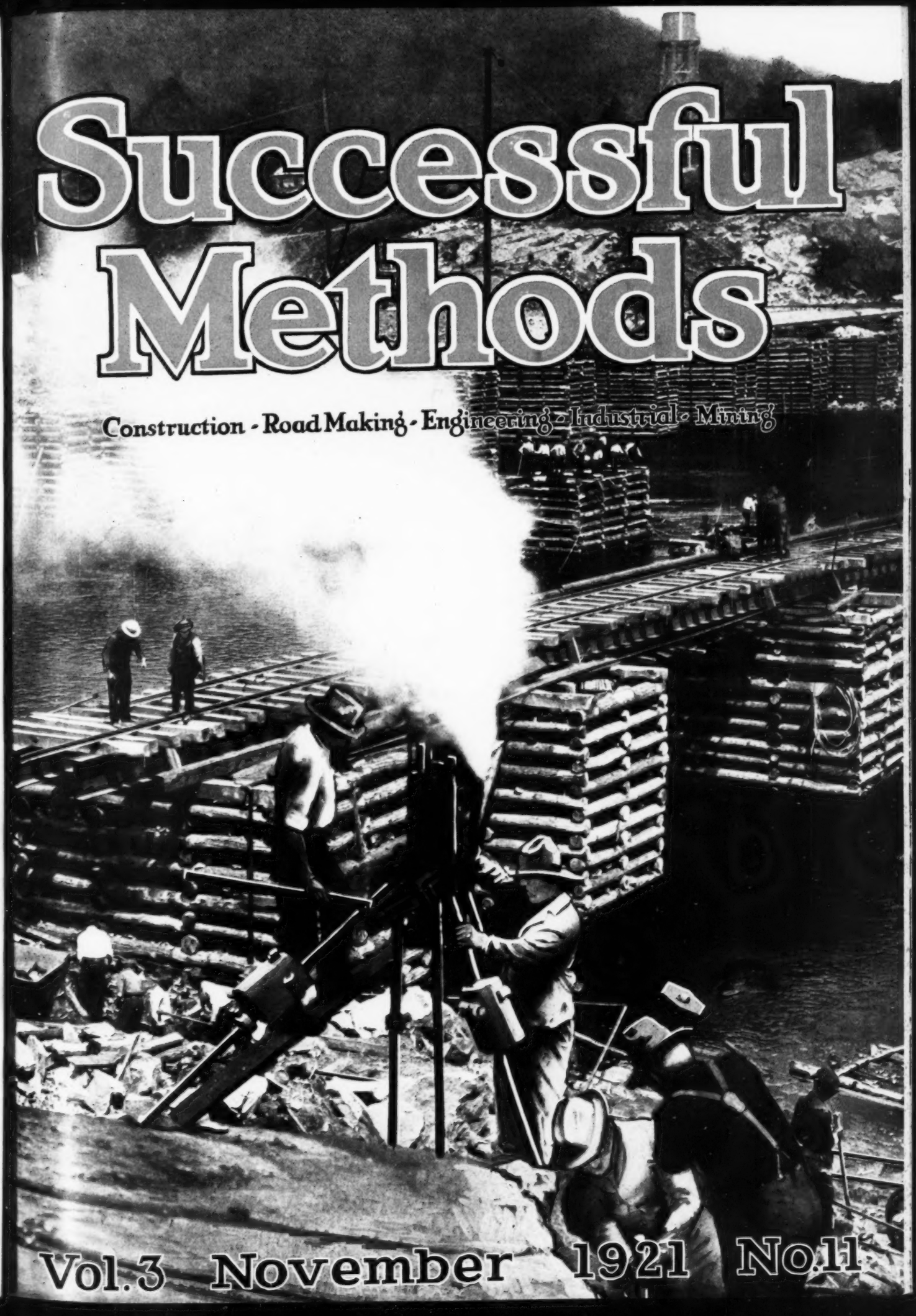
Successful
Methods
Construction - Road Making - Engineering - Industrial - Mining
Vol. 3 November 1921 No. 11

The Only True Basis *of* Comparison between Crushers *is that of* Cost per Ton *of* Output *over* a Long Period *of* Time

First cost, operating expense, production figures—each means nothing by itself. What counts is LAST COST, and that can only be expressed as the average cost to produce a ton of crushed stone.

Judge Austin Gyratory Crushers on any basis you choose, and they make a fine showing; but it is on the Last Cost basis that these Crushers should really be judged, for then the exclusive Austin features which increase production and reduce expense make themselves felt unmistakably.

Austin Gyratory Crushers are made in stationary and portable types and in eight sizes, having capacities of from 5 to 500 tons per hour.

Catalog No. 28-X illustrates and describes them in detail. It also shows screens, elevators, cars, hoists, etc., and many complete layouts of particularly successful plants. *Write for your copy today*

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Successful Methods

A Magazine of Construction Service

Published by SUCCESSFUL METHODS, Inc.
F. A. SMYTHE, President
S. T. HENRY, Vice-President and Treasurer WILLIAM JABINE, Secretary and Editorial Director
141 Centre St., New York City, N. Y.

Vol. III NOVEMBER, 1921 No. 11

Fall Lettings

MORE road work will be let between September 1 and the end of this year than ever before in the same period. In fact, the indications now are that road lettings will total several times the amount of any previous fall. Contracts for other classes of public works also are being awarded on a scale heretofore unknown at this season. The figures involved in dwellings and small buildings that are going ahead or about to be started are tremendous. Meanwhile, new industrial and commercial jobs are far below normal, as is natural under present business conditions.

Several causes have brought about the placing of public works contracts at a time previously considered out of season. Probably the most pressing of these has been a sincere desire on the part of public officials to provide employment for idle men. Taking the totals of the recent public works lettings at face value, it would appear that a vast number of men should get jobs immediately. Whether that is the case remains to be seen.

Only a limited amount of actual construction work can be done in the North between now and April. Even in the South, bad weather will hold up field work much of the time this winter. The attitude of public officials toward giving contractors estimates on materials, supplies and machinery put on the job before actual work is done will, therefore, determine almost entirely whether lettings in advance of the usual season are going to get the results expected.

Several states have been most liberal in making advances to contractors on purchases delivered to the job in advance. Others are still sticking to the old policy of estimates only on work done. Most countries and cities also have not changed from the old policy. Now is the time to go all the way. Nothing will be gained by awarding a contract in the fall unless the contractor is helped to finance his purchases made to speed up the work involved.

Contract Prices

MOST contractors are wondering where the bottom is on prices at which work is going. First a report comes from one locality of jobs taken at ridiculously low figures. Then other work of the same kind somewhere else is bid off even cheaper. And so it goes, until we are down to the basis of $1.25 labor and no profits.

What is the answer? Prices of materials and labor must come down, or a lot of contractors will have to take in their belts. Sooner or later there is going to be a turn upward. Meanwhile many concerns evidently figure it is better to take work at no profit, or even at a loss, rather than to carry their organizations or lose them entirely.

However it is figured, this surely is a real time in which to let work. "It's an ill wind——," even though the contractor is on the ill side. But it cannot long be like this, nor should it be.

Have You Sent in Your Entry?

TURN to page 17 of this issue of SUCCESSFUL METHODS if you are breaking records on your road construction job. The contest for the world championship is still open and entries will be accepted which are in the mails by December 1. The time limit has been extended in order to give everybody a chance. Contractors all over the country are sending in entries. Read the conditions and note that every man has a chance no matter what size of mixer he is using or what width of road he is building, as all records will be reduced to a common standard. Clip out the blank, fill it in and mail it to SUCCESSFUL METHODS as soon as possible.

The prize-winners will be announced in the January issue of SUCCESSFUL METHODS.

Successful Methods Is Sent Free

IN nearly every mail we receive requests for the subscription price of SUCCESSFUL METHODS. This magazine is sent free to anyone engaged in construction work or in the handling of bulk materials who wants it.

If you or any of your friends desire to receive a copy regularly just send us your name and address. Tell us, at the same time, the kind of work which you do. Your name then will be placed on our mailing list and your copy of SUCCESSFUL METHODS will arrive monthly.

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Six Different Solutions

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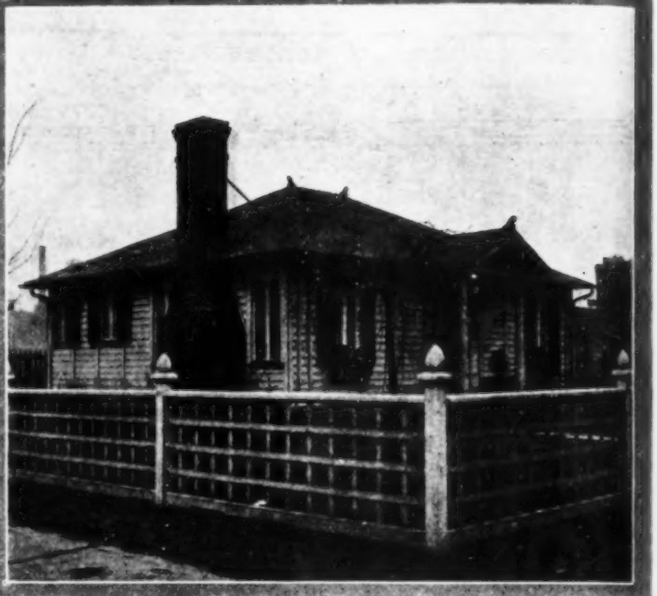
Old munition boxes are being used in Germany. They are first filled with concrete and then set into the walls



© Underwood & Underwood

This house can be bought by mail—all except the foundation—from a Chicago mail order house

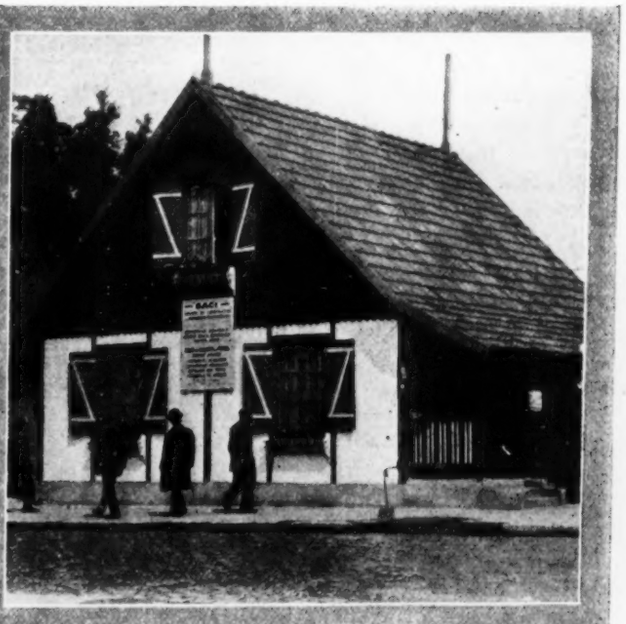
© International

How they build in Japan. The roofers are at work in this photograph

Of the Housing Problem

© International

A simple style of construction that obtains in Iceland. The house seems to be all roof



© Underwood & Underwood

They are putting up neat stone houses like this in some portions of devastated France. This one sells for 2500 francs

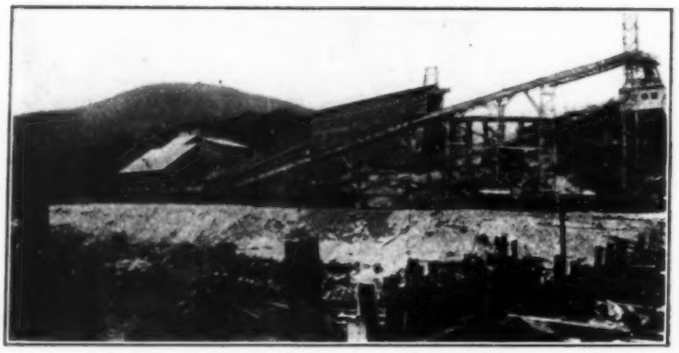
© International

Labor is cheap in Nigeria and anyway it would be difficult to design a machine to do this sort of work

THE SHERMAN ISLAND HYDRO-ELECTRIC DEVELOPMENT

Modern Construction Methods in Use on Big Project on Upper Part of the Hudson River

ONE of the largest undertakings under construction at present is the development of a substantial hydro-electric power plant for the International Paper Company on the Hudson River, about 6 miles west of Glens Falls. The completion of this project will completely develop every foot of available head on the Hudson River between the Spiers Falls plant of the Adirondack Electric Corporation and the feeder dam of the New York State Barge Canal, a distance of about 8 miles. The International Paper Company has had this project under consideration for the last ten or twelve years, during which time studies of the stream flow, topographic and geologic conditions and the design of the development were carried on by the company's engineering staff.



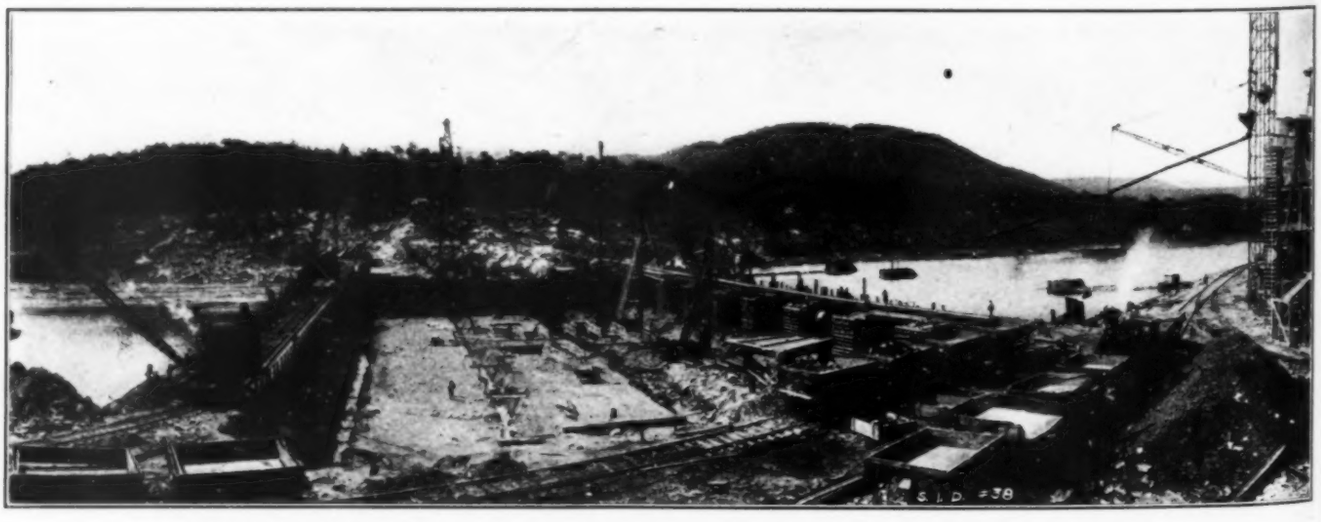
ROCK FROM EXCAVATION GOES TO CRUSHER PLANT.

The plan ultimately adopted calls for a multiple arch dam, 600 ft. long, across the Hudson River, about 800 ft. west of Sherman Island, from which the development takes its name; a spillway dam and wasteway on the south side of the river; a headrace canal about 3500 ft. long on the north shore and a power house in Little Bay, designed to accommodate five 10,000-hp. turbines with the necessary electrical machinery under a head of 65 ft. The quantities involved are about 1,000,000 cu. yd. of earth excavation, about 200,000 cu. yd. of rock excavation and about 110,000 cu. yd. of concrete of all classes.

The contract was awarded to the Parklap Construction Corporation of New York City on Nov. 12, 1920, and work on the project started at once. It is believed that the whole development will be completed by the end of 1922.

A standard gage construction railroad was built from Glens Falls to the dam site during last winter and at the same time a large camp was constructed to accommodate the field office, the field office force and the working men. Special care was taken to keep the camp clean and sanitary and considerable money was spent in procuring a good water supply and in building an adequate sewerage system.

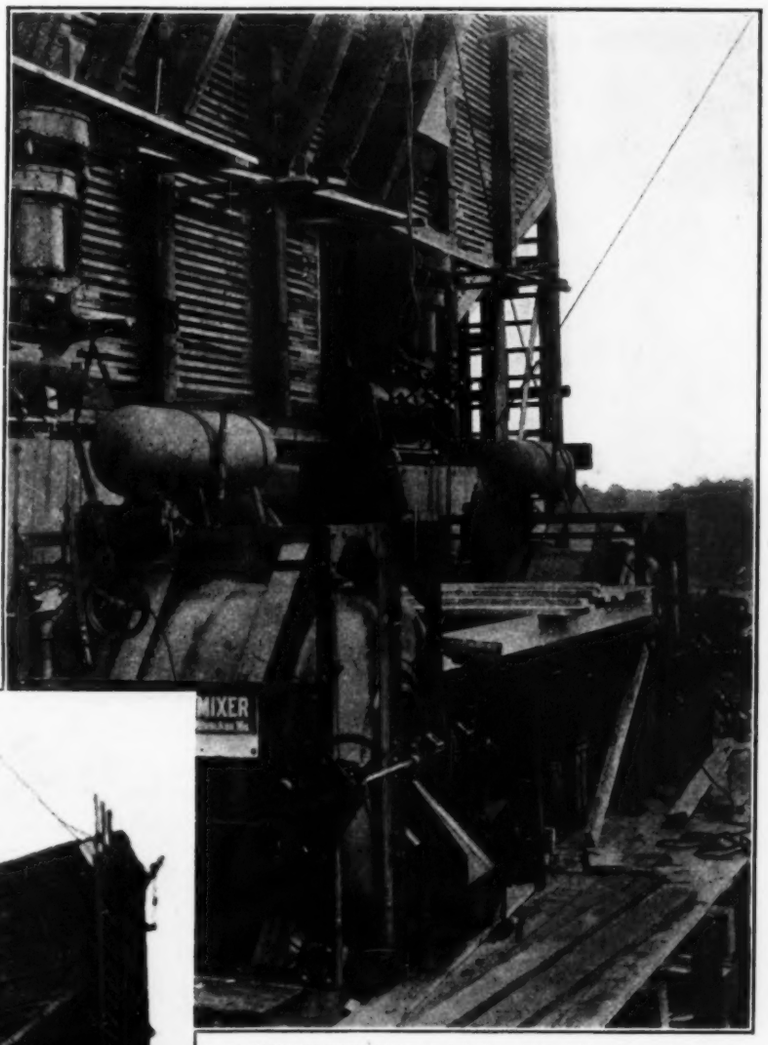
The construction plant was carefully designed and the necessary machines selected for most efficient operation. This plant falls into the following chief departments: 1. Plant for rock excavation and removal, consisting of well drills and air drills, locomotives and cars. 2. Plant for earth excavation and removal consisting of steam shovels and drag line excavator, locomotives and cars. 3. Plant for placing cofferdams, consisting of pile drivers, locomotive cranes and derricks. 4. Concrete plant consisting of a complete crusher equipment, large bins to receive the bulk cement and the usual bins and mixer plant. 5. Power plant; electric power is delivered by a spe-



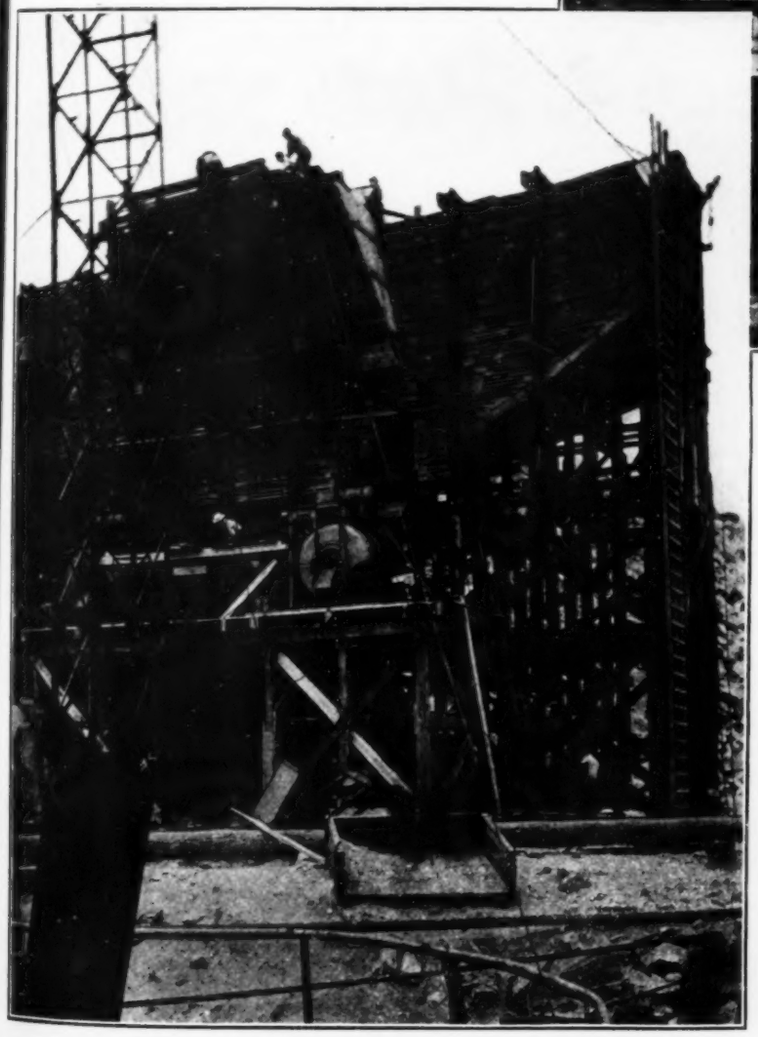
THE 350 FT. NORTH SECTION OF THE COFFERDAM. CONCRETING NOW IN PROGRESS.

cially constructed transmission line from the International Paper Company's Glens Falls power plant. Three air compressors deliver compressed air to drills and pile drivers. A cableway of about 1400 ft. span is stretched across the river to aid in handling various materials from one shore to the other and from the cofferdams.

Work was started simultaneously at three points, namely, the excavation for the canal, the building of the cofferdam for the main dam and the rock excavation for the spillway. The cofferdam consists of steel sheet piling supported by cribs which at the same time are used for the piers of the railroad track which connects the two banks of the river and both upstream and downstream of the proposed dam. The dam is being built in two sections so that sufficient waterway is provided at all times for the passage of the water. The first cofferdam extending from the north bank to a distance of about 350 ft. was successfully unwatered about July 15, and the excavation for the dam proper and the placing of concrete has since been in progress.



THE WEIGHING DEVICE AT CLOSE RANGE.



THE MIXING PLANT SHOWING THE WEIGHING DEVICE PANEL IN PLACE.

Notwithstanding the fact that the river bottom consists of large boulders underlaid with sand, there is no difficulty in keeping the cofferdam clear of water.

The power canal is of unusually large dimensions, being 32 ft. wide at the bottom and about 40 ft. deep and having slopes of 1½ to 1. Both the bottom and the slopes will be lined with concrete. The waste channel is entirely in rock and from this excavation is derived the larger part of the rock used in the construction. This work is not advanced very far at the present time. The dirt overlay, however, has been all cleared away by hydraulic methods.

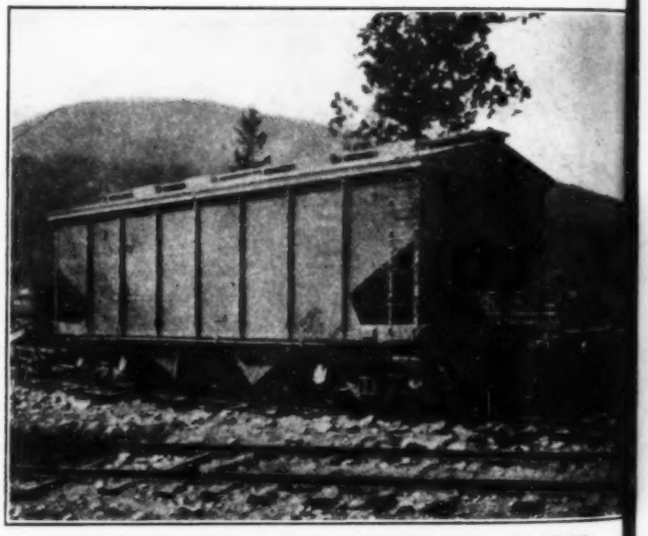
Rock derived from the excavation is delivered to the crusher plant from which the broken stone is either directed into the feeding bins or to the crushed rock pile for later use. The sand used for concrete comes from the canal excavation and is delivered directly into the bin above the mixers. The cement comes in bulk in steel gondola cars having specially constructed covers to prevent damage by rain or wind, and is dumped into large bins from which it is taken by a belt conveyor to bins above the proportioners.

STANDARD HOPPERS AND GATES WITH AUTOMATIC TRIPS.

Proportioning is done by an automatic device which delivers all materials, including the bulk cement, by weight, thus insuring a high degree of accuracy and a standard consistency for the concrete. The proportioner is in the form of a panel framed into the bin in which the aggregates are stored. This panel is equipped with three standard hoppers and gates which are tripped automatically. The proper amount of material is determined by balances which are adjusted by means of metal slugs. The weighing apparatus is complete in itself and is adapted to any size batch or any proportions. The proportioner is quickly adjusted for changes in proportions called for by the strength requirements, by the members being cast, or because of variations in material. It also makes each mixing unit a truly one-man plant and replaces fallible human judgment with precise measurement. This proportioner seems to be the only means by which contractors are enabled to make a definite concrete of definite strength which will meet the requirements of the Joint Committee's Specifications.

The mixers discharge into a bucket which is elevated 180 ft. in a tower and dumped into chutes which can be directed to any part of the structure. The forms for the concrete work are prepared in advance and are so designed that they can be set up and stripped without injury either to work or forms. The force employed is between 500 and 600 men and includes a comparatively small proportion of unskilled labor as it is intended to use the construction plant to the best advantage.

The work is being executed by the Parklap Construction Corporation, which corporation is managed by the engineering firm of Parsons, Klapp, Brinckerhoff & Douglas. The field forces are in charge of E. A. Little, manager; G. Miller is assistant superintendent, and H. L. Muchemore, field designing engineer. Nathan C. Johnson is consulting engineer on the plant and concrete work. The data for this article was furnished by Eugene E. Halmos, office engineer.



COVERED CAR FOR CARRYING BULK CEMENT.

THIS PHOTOGRAPH SHOWS THE NATURE OF THE EXCAVATION AT THE SHERMAN ISLAND DEVELOPMENT.

SUBLETTING THE HAULING

Contractors on Illinois Road Job Hire Motor Trucks to Transport Concrete on Yardage Basis

HAULING mixed concrete from a central mixing plant in motor trucks on yardage basis as a subcontract is the way Pronger & Black, road contractors of Blue Island, Illinois, are handling that part of their contract for 7 miles of concrete road at Worth, Ill. The road, which is a continuation of 111th Street, Chicago, is 18 ft. wide and 8 in. thick throughout. The entire 7 miles are straightaway.

ROLLING THE SUBGRADE.

The central mixing plant consists of a 1-yd. mixer, hopper, etc., located on the railroad at Worth. Cement is stored near the bins and is elevated to the charging platform by means of a belt conveyor. Sand and stone bins are charged with a stiff leg derrick operating a clamshell bucket. The mixer used is of 1-yd. capacity, but W. A. Black, one of the partners, says that his next machine for roadwork, where a central mixing plant is used, will have a capacity of not less than 2 cu. yd.

SETTING THE FORMS.

For transporting the wet concrete from the central mixing plant a fleet of motor trucks, one of which may be seen in the illustration, is used. Mr. Black explained that the driver of each truck is also its owner and that each was hauling on a yardage basis, a definite contract covering the agreement having been made. On the short haul only 4 trucks were being used, but the number would be increased when the haul became longer. The longest haul is 5½ miles and the shortest haul 150 ft. On some road jobs as much as $20 a day is spent on auto mechanics alone, and when the question of maintenance on motor trucks is considered the great advantage of Mr. Black's arrangement is readily apparent.

The accompanying illustrations show how the remainder of the work is being done. The upper picture shows the subgrade being prepared by a mechanical subgrader which is being hauled along by a 10-ton steam roller.

The center picture shows how the steel forms are wedged tight by means of a maul. In this picture the subgrader is shown turned through 90 deg. to allow trucks hauling wet concrete to pass. For transporting the steel forms or for moving them ahead, the contractor uses what might be called a mud boat, which is a low wooden frame on runners. A single horse draws the sled. As the slab is uniform in thickness all the crown is made in the subgrade by the subgrader.

The bottom picture shows the truck and finishing machine and in the distance may be seen the frame and covering for protecting the concrete while curing. A tractor and a combined grader and scarifier, as well as team-drawn wheel scrapers, are used on the grading. Sprinkling water is being supplied by gasoline pumps through 2-in. pipe.

Concreting was started on May 28, 1921, and the entire 7 miles will be completed this season. As 111th Street farther east is within the Chicago City limits and carries heavy traffic, this piece of work is an important and welcome link in Illinois hard roads system.

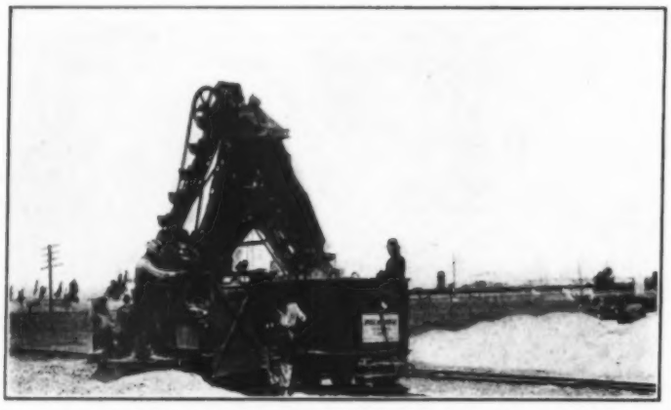
DELIVERING THE CONCRETE.

One occasionally finds engineers and contractors who are still prejudiced against the transporting of wet concrete in motor trucks for any considerable distance. The above described method of concrete road building is no experiment, and is permitted by most highway departments.

BUILT TO BREAK UP

Concrete Ellipse Constructed at Pittsburg, California, for Sole Purpose of Making Tests

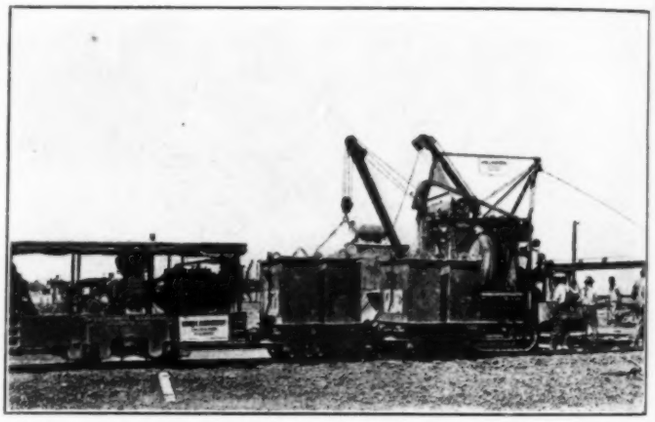
BY the time this issue of SUCCESSFUL METHODS reaches its readers tests probably will be under way on a concrete test highway recently completed at Pittsburg, Cal. This highway, elliptical in shape, is 1370 ft. long and was built for the express purpose of being tested to destruction by operating motor trucks of various sizes and weights over it. By this method it is expected that it will be possible to determine the relative merits of different materials and cross-section designs and at the same time to develop, if possible, improved types of plain and reinforced concrete pavement. The road is 18 ft. wide and includes 13 sections of pavement differing in design and in the quantity and location of reinforcing.



LOADING THE GRAVEL INTO THE BATCH BOXES

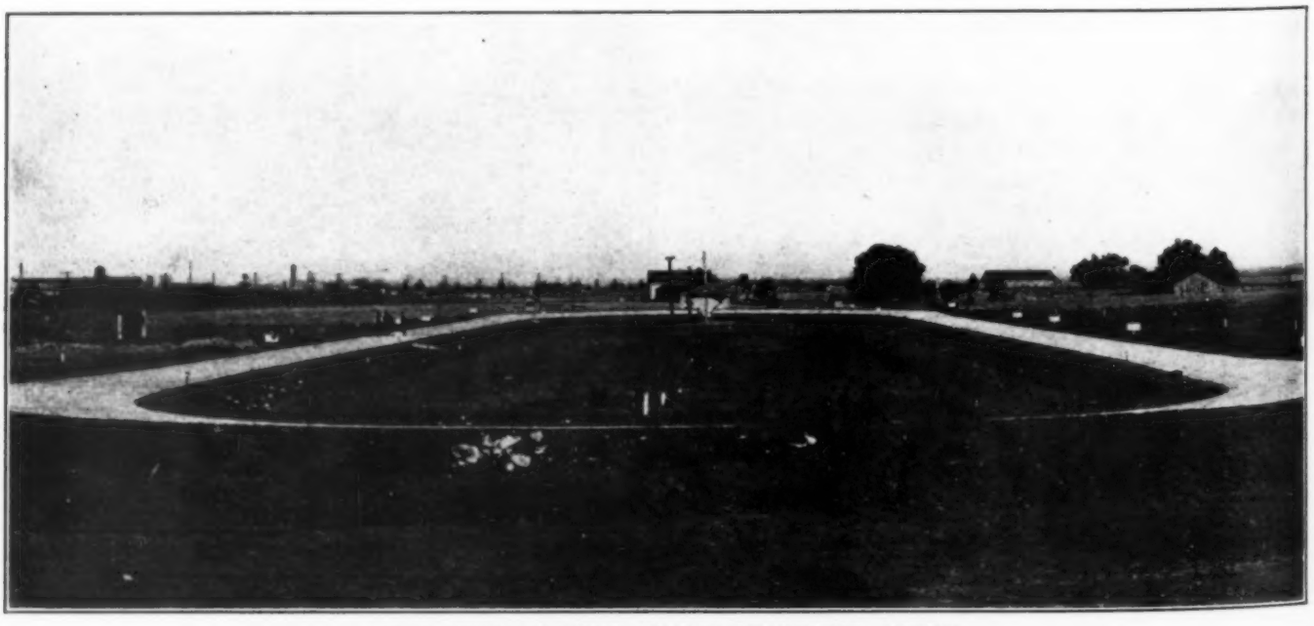
The equipment for building this test highway was furnished free of charge by various machine supply houses and building supply men donated the crushed rock and sand. The contractor in charge did the work for the bare total of force account and expenses.

The photographs which accompany this article show the construction work under way. The stock piles of sand and gravel were made by hauling the material from cars and barges by motor trucks. Two wagon loaders of different design competed with each other in picking up the sand and gravel and depositing it in batch boxes, which were carried two at a time on car trucks run on 24-in. gage industrial track. This industrial track was laid on the outer shoulder and extended entirely around the test highway. A 9-ton gasoline locomotive was used to haul the cars. On the way to the mixer the trains stopped at the stock piles of cement where four bags were loaded into each batch box. The mix on 12 of the sections was 1:2:4 and on the thirteenth 1:2½:4. A paver and finishing machine laid the concrete.



ARRIVING AT THE MIXER

One of the interesting features of the test highway is the four tunnels which have been built under the test highway. These are so constructed that observations can be made on the under side of the slabs.



THE TEST HIGHWAY ALMOST READY FOR ACTION

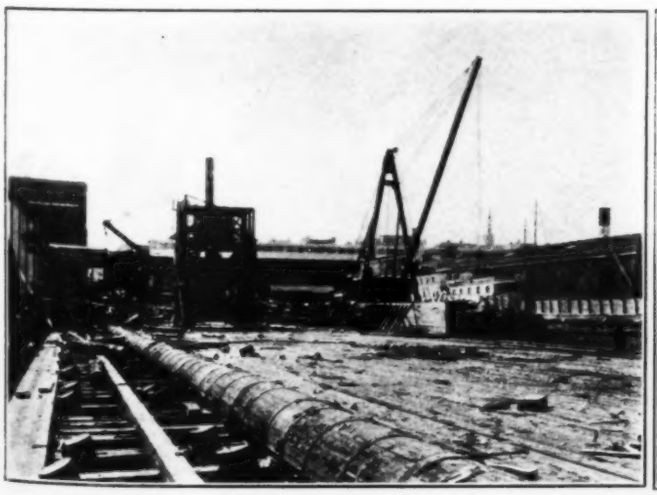
PILE DRIVING METHODS ON PHILADELPHIA PIER

Equipment Is Mounted on Trucks to Increase Facility of Movement

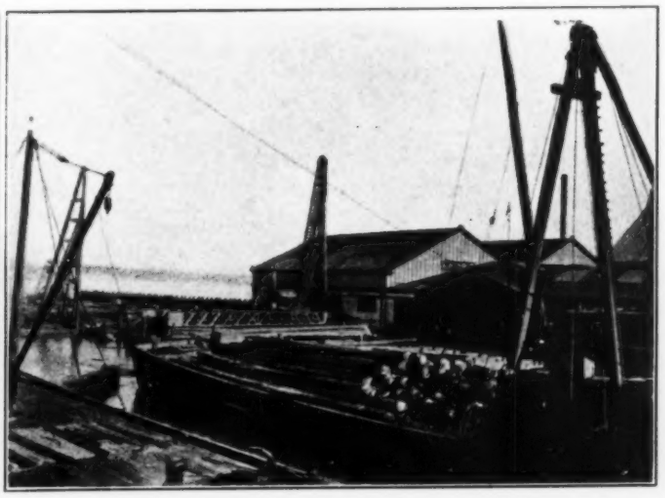
THE McLean Contracting Company of Baltimore have recently completed for the city of Philadelphia the substructure for a new pier at the foot of Chestnut Street, which is known as Pier 4 south. The manner in which the foundation piles, which are on 4-ft. centers with bents on 5-ft. centers, were driven, as well as the method used in putting down the spur piles, is worthy of note. One of the illustrations shows an 80-ft. old lattice steel girder span which is mounted on trucks to run on rails lengthwise of the pier. The pile driver is mounted on rails which are carried by the girders, and the driver is enabled to propel itself back and forth while the girders themselves are able to travel lengthwise of the pier. Steam hammers were used to put down the foundation piles and 60-ft. sticks were driven in an average time of 3 min. Another illustration shows the driver with incline leads carrying a drop hammer which was used to drive the spur piles on the south side of the pier. As is indicated in the illustration this machine is also mounted on wheels which allow it to travel lengthwise of the pier. Spur piles on the north side were driven from a float or marine driver carrying similar leads mounted on a scow.

DRIVING THE SPUR PILES.

For concreting the pedestals and walls a 1-yd. mixer was mounted on a traveler which also carried a hoisting engine, boom and steel chutes. Material barges alongside may be seen in this view and the float derrick by means of dump buckets charges the mixer. Work was started Feb. 21, 1921, and the substructure completed Sept. 20. A 2-story steel shed is to be constructed. The job personnel includes W. C. Work, Superintendent, and H. M. Ward, Assistant Secretary and Treasurer.



CONCRETE PLANT MOUNTED ON TRAVELER.



PILE DRIVER WITH TWO-WAY MOTION.

Send in Your Entries for the Concrete Road Building Championship. Fill out the blank on Page 17. No Entry Fee. Substantial Prizes.

GOLF KEEPS CONTRACTORS BUSY

About $10,000,000 Is Being Spent for Construction by Clubs in Small Area Near New York

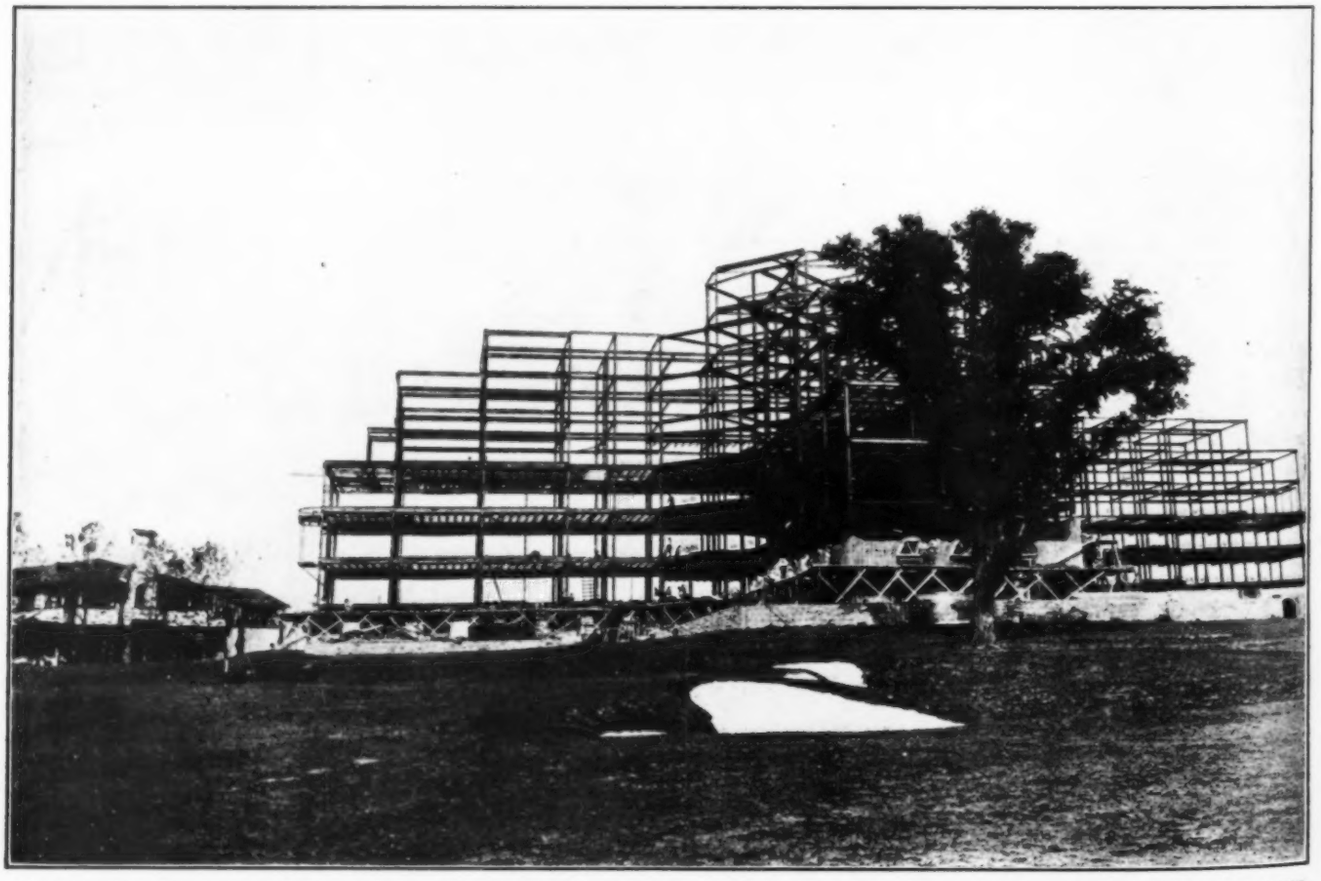
THE royal and ancient game of golf, as well as sports in general, were never more supreme in the U. S. A. than at the present moment. Between the Hudson River and Long Island Sound, within a radius of 20 miles from Grand Central Station, New York, there are now under construction golf and country clubs which in real estate, grading and buildings, involve an expenditure of approximately $10,000,000.

Near Rye, Long Island, the finest and most complete outdoor sports center in this country, if not in the world, costing about $8,000,000, is being constructed by the Westchester-Biltmore Country Club. Included in the project are a thoroughly modern, up-to-date fireproof club house containing about 400 rooms and baths, golf house, sports house with locker rooms, etc.; a large and modern garage, commodious stables and other service buildings; two 18-hole golf courses, one of them a reversible course; a polo field of full regulation size; a steeplechase course; miles of bridle paths; a large number of tennis courts; squash courts; a swimming pool; a lake for skating; skiing, tobogganing, archery, trapshooting, picnic grounds, playgrounds for children, etc. About 300 acres have been taken over for sports purposes, and something over 300 acres for private homes, which will be built in connection with the hotel.

The illustration shows the club house under construction by the Geo. A. Fuller Co., who have the general contract. Geo. A. Mertz Sons of Portchester, N. Y., are subcontractors on the concrete floors, of which there are 240,000 sq. ft. For pouring the floors, for which metal tile forms are used, the Mertz company have rigged an elevator in the interior of the building. A plank ramp or runway enters the building at the mezzanine floor level. Five-ton trucks carrying sand and stone dump through this ramp into bins beneath, which charge the mixer located on the main floor. The hopper is constructed without a bottom, the material being allowed to flow to the basement floor. When all floors have been completed the material forming the bottom of the bins will be used for the basement floor. The bins are built to hold 300 yd. of stone and 150 yd. of sand and considerable labor and material were saved by using the bottomless bins. Two-wheeled buggies are used to transport the concrete from the elevator to place. Between 5000 and 6000 sq. ft. per day are being poured.

The Winged Foot Golf Club composed of members of the New York Athletic Club is preparing to build a 36-hole golf course and a handsome clubhouse on a 280-acre tract at New Rochelle.

The property of the New York Athletic Club at Travers Island is being improved to include a large ath-



AN IDEA OF THE SIZE OF THE WESTCHESTER-BILTMORE CLUBHOUSE MAY BE OBTAINED FROM THIS PHOTOGRAPH.

EXCAVATING WITH A STEAM SHOVEL FOR THE NEW SCARSDALE CLUBHOUSE.

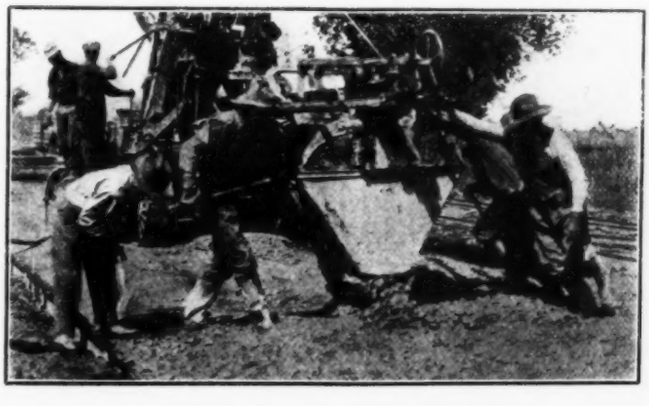
letic field. The amount expended for these projects will be considerably in excess of $1,000,000.

At Hartsdale, N. Y., the L. M. Neckermann Company of New York is building a 70 by 200 reinforced concrete club house for the Scarsdale Golf Club to replace the old building that burned down. Earth and rock excavation amounting to 20,000 cu. yd. will be made for the club house and one of the photographs shows a steam shovel excavating for the basement. The masonry wall shown in the background of this picture varies in height from 10 to 25 ft. and the method of its construction is novel inasmuch as no scaffolding whatever was used. The stone for the wall was obtained on the site and the filling was made in layers in such a manner that the seven masons worked from the new fill. This required no scaffolding and no elevating of material which effected considerable saving. The rocky nature of the ground is shown in the photograph and in nearly all cases the large boulders were handled by the dipper without blasting.

Although the construction of a golf course calls for a highly specialized expert, the great bulk of the work connected with the construction of a golf or country club is in the realm of the ordinary general contractor. Vast sums of money are being spent and more will be spent on similar projects. The work involved is well worth going after.

Eliminating Shovelers on a Highway Job

SPREADING concrete by swinging boom and bucket across the road is illustrated in the accompanying photograph. By this means hand shoveling is reduced to a minimum, with a consequent saving in cost of labor. The boom and bucket swing so freely that this method of distributing the concrete can be utilized.

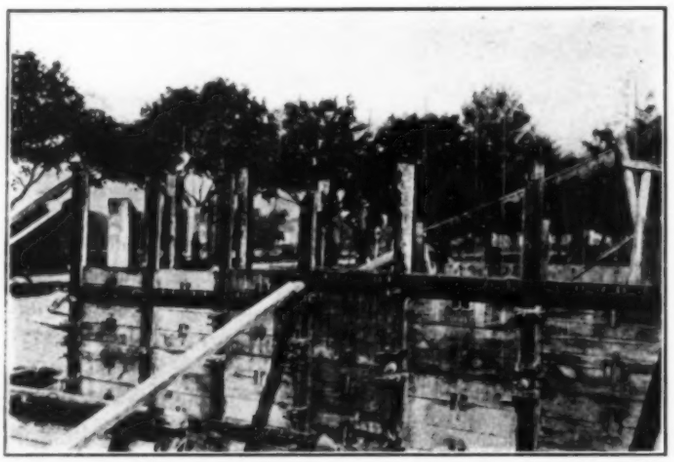


This particular picture was taken on Andrew Brothers' job at Mineola, L. I., and the contractors are particularly pleased with the tripping device which opens and closes the bottom doors of the distributing bucket. It is not dependent on the tension of the cables which may be comparatively slack. On this work the machine generally mixes a two-bag batch.

BUILDING SMALL HOUSES WITH A SMALL PLANT

Long Island Contractor Is Doing Economical Work with One Bag Mixer

FRANCIS F. WILSON, building contractor, is doing his bit to relieve the housing situation on Long Island by putting up twenty-five 2-story concrete houses of 6 to 8 rooms with hardwood floors, modern plumbing, etc. The accompanying photographs, recently taken at Rockville Center, the site of his building program, show the method which he is using. One of the pictures shows the flexible steel forms in place. These forms have a wooden back and are adjustable in length in multiples of 4 in. He is using a 1-bag concrete mixer and his method of procedure is as follows: After the excavation is made with team and slip scraper, the footings are poured and also the cellar floor. Lines are then laid out on the cellar floor and the forms are set for the basement story and poured immediately. The inside forms are stripped within 24 hours and the forms set for the floors, the same forms being used for floors. Steel is next set and tied, the sleepers and electric conduits set and the floor poured. The lines are then laid out for first-story walls, and the operations repeated.



"INFANT" STEEL FORMS IN PLACE FOR FIRST FLOOR POURING.

There are seven pouring periods: (1) Basement floor, (2) basement walls, (3) first floor, (4) first-story walls, (5) second floor, (6) second-story walls, (7) attic floor. Three weeks are taken up with the concreting of one house, after which the concreting plant is moved to the next site. The exterior walls are 8 in. thick from footings to roof. The interior walls are of concrete varying from 6 in. to 4 in. and in some closet partitions to only 2 in. in thickness. The floors are reinforced concrete slabs 6 in. thick, covered with hardwood flooring nailed to 2 by 2 sleepers, resting on the slabs. Even the stairways are of concrete, with hardwood treads to match flooring.

THE FINISHED PRODUCT BUILT IN 1915. F. F. WILSON, THE CONTRACTOR, IS SHOWN IN THE INSERT.

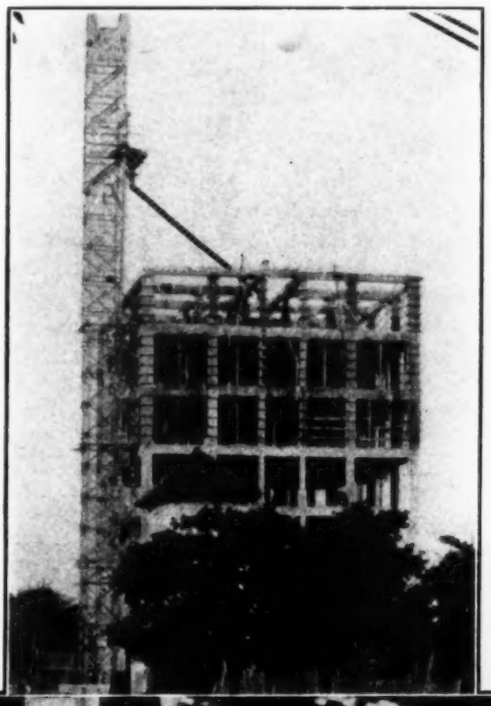
The window frames are like those regularly used in brick walls and are set in the forms and the concrete poured around them. On the inside the rough casing was removed and a thin hardwood casing put in its place. The concrete is proportioned 1:2:4 and the walls reinforced with ½-in. diameter round steel rods placed in the center of the wall and spaced 24 in. apart, both horizontally and vertically. Over all window and door openings extra bars are placed at 45 degrees so that no cracks can occur at the corners of the openings. The walls are finished with a thin coat of white cement floated to a sand finish. The floor slabs, 6 in. in thickness, are reinforced with ½-in. round steel rods spaced 9 in. apart the short way and 24 in. apart the long way of the slab.

Summing up the advantages of the concrete house in the words of Mr. Wilson, "Practically all labor, except foremen, is unskilled, fairly easy to obtain and easily replaced. The bulk of materials—sand and stone or pebbles—can usually be obtained near at hand and at low cost with a minimum of delay. The small, portable concrete mixer and the 'infant' forms, together with the above advantages, have converted me to this type of house."

These particular houses will sell for from $7,000 to $10,000 each.

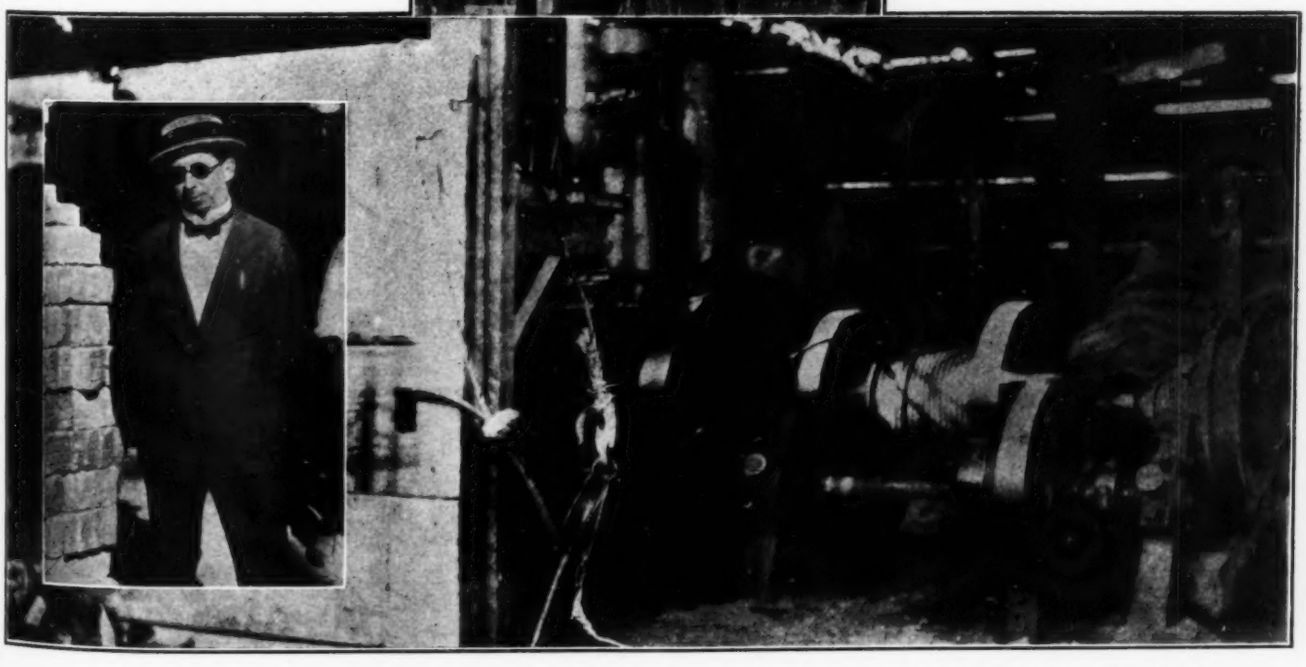
THEY USE ALCOHOL FOR FUEL IN HAVANA

ALCOHOL seems to be both plentiful and easily obtainable in Cuba for they use it down there to run gasoline engines. The hoist shown in one of the accompanying photographs is run by alcohol, and records which have been kept by Senor Mario Lens, the engineer and contractor who owns it, show that 12 hours of work can be done on 8 gal. of alcohol as opposed to 7½ hours of work with 8 gal. of gasoline. The load which the hoist handles is a galvanized iron elevator bucket in a wooden frame holding 7 cu. ft. of concrete.



This hoist is at work on an 8-story and basement apartment building which is being constructed at the corner of 6th and 11th streets, Vedado, Havana. There will be 4 apartments on each floor. It is an unusual type of building for Havana and the stories are much higher than is usual in American apartment houses because of the warmer climate. The tower shown in the upper illustration is 150 ft. high.

Senor Lens, who gets to work with his entire crew at 7 o'clock in the morning, is shown in one of the photographs. The greater part of his construction plant consists of American machinery, even the hand shovels which he uses being imported from the United States. Senor Lens is a believer in modern methods.



SENOR MARIO LENS, HAVANA CONTRACTOR, AND THE APARTMENT BUILDING HE IS PUTTING UP.

EVERYBODY IN ON IT

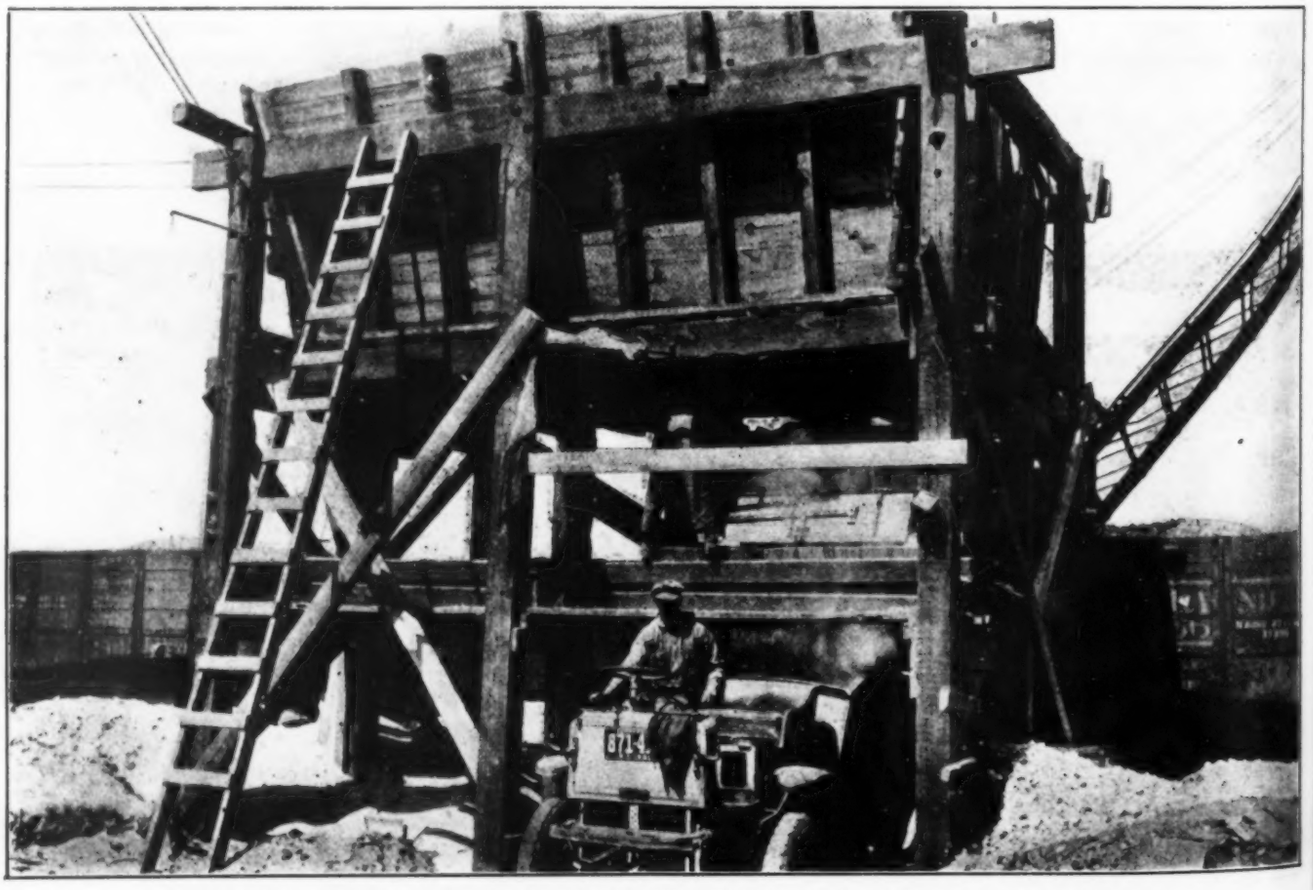
Esprit de Corps Is Outstanding Feature of the Wm. J. Porter & Co. Road Job at Eastport, Long Island

ESPRIT de corps on construction work is just as essential as proper methods and machines. Upon arriving at Eastport, L. I., to look over a 9-mile stretch of concrete road which Wm. J. Porter & Co. is building for the New York State Highway Dept., the representative of SUCCESSFUL METHODS was escorted to the job in one of the contractor's "flivvers," and the chauffeur was as full of information as the lecturer on a sight-seeing bus. He knew the total length of the road, the amount completed to date and the record day's run.

This interest in the work was not confined to the chauffeur alone as the rest of the force took a corresponding interest. Good-will and a desire to do their bit was apparent. This spirit, efficient methods and up-to-date machines are responsible for a record of 947 ft. of 20-ft. road in a 10-hour shift. The road has a width of 20 ft. and cross-section dimensions of 6 by 7¼ by 6 in. The mix is 1:1½:3½ and 2 in. up from the bottom, steel reinforcing weighing .4 lb. per square foot being used.

A central proportioning plant is located on a temporary 700-ft. spur at Eastport which was built by the contractor and which is at about the center of the work. The proportioning plant, a view of which is shown below, consists of a bin divided into two compartments, one for sand and one for stone. The car, which may be seen just above the truck, runs back and forth on a track. This car is divided into two batch compartments and each batch compartment is subdivided to hold the proper amount of sand and stone. The batches are proportioned in the car and trucks are used to transport the aggregate to the mixer. One of them is shown in the photograph. These trucks are charged with two batches in 15 seconds. A steam shovel operating a clamshell bucket charges the bin above, the sand being obtained from an adjacent pit in reach of the clamshell while the rock is received in gondola cars.

Another device which the Porter organization is using is shown in the photograph on the next page, and serves to keep the reinforcing in place. This device consists of 6 pieces of 3-in. pipe, 16 ft. long. Two center pieces are fastened to the axle and the four outside pieces are fastened to a piece of 3-in. pipe, which is secured to the trucks of the mixer. Reinforcing is laid on these pipes and the concrete is poured. As the mixer moves ahead these pipes are drawn along with it. By this means the reinforcing is kept at its proper place in the slab without the usual trouble.



VIEW OF CENTRAL PROPORTIONING PLANT SHOWING BIN, BATCH CAR AND TRUCK.

SIX LENGTHS OF 3-IN. PIPE USED TO KEEP REINFORCING IN PLACE

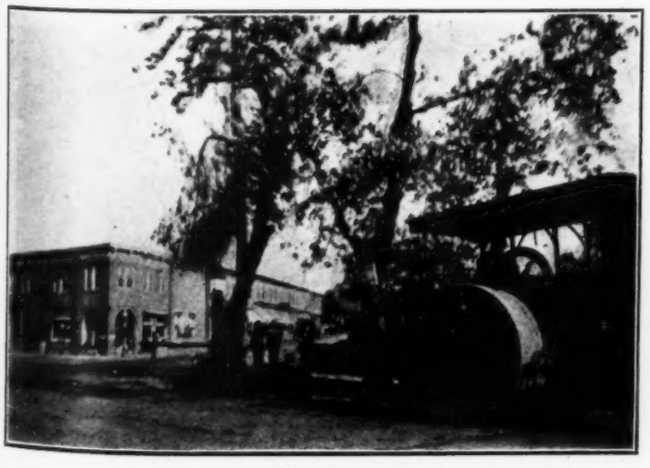
Trucks haul the batches to the mixer and the pouring of the road is done in such a way as to take advantage of the roads already laid, allowing two weeks for curing. For the close haul the trucks handle two 6-bag batches and for the long haul, two 5-bag batches. Truck bodies are divided into two sections. One section is dumped, the partition tripped and the truck moved ahead, and the second batch dumped.

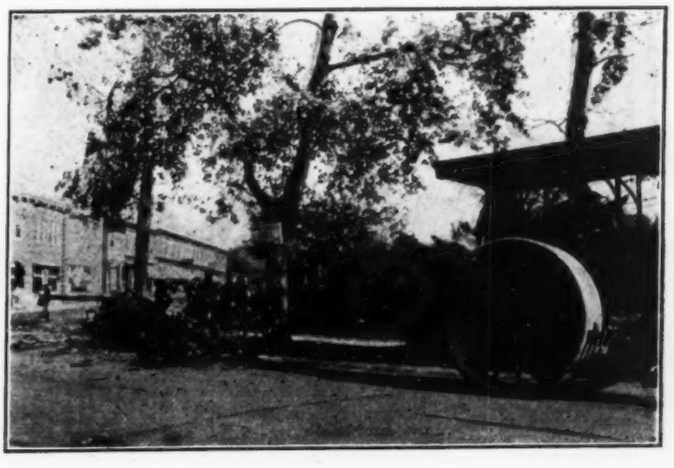
The force is as follows: Central mixing plant, 1 foreman, 1 crane engineer, 1 crane fireman, 6 laborers, 1 team with fresno scraper to keep the pit in shape. Handling cement: 9 men handle bag cement from cars directly into truck. No storage house is used, and on account of the average demurrage agreement very little demurrage accrues. Hauling: 1 foreman, 9 truck drivers, 2 mechanics. Mixing and placing: 1 foreman, 1 mixer engineer, 1 finisher foreman, 3 finishers back of machines, 1 finisher operator and 9 laborers spreading concrete. Form work: steel forms, 1 form setter, 3 laborers, 1 team. Covering concrete: 2 laborers, water supply, 1 pump engineer. Miscellaneous: 1 mechanic, 2 timekeepers, 1 watchman.

Under his contract Mr. Porter has until August, 1922, to complete his job. He will finish it this season.

CLEARING AND GRUBBING WITH A TEN-TON ROLLER

FOR clearing and grubbing, a 10-ton steam roller would hardly be considered the ideal machine. Nevertheless, Andrews Brothers, road contractors of Mineola, L. I., used a roller to remove a big tree which was in the way of the road widening they are doing at Baldwin, L. I. The illustrations show the tree starting to fall and later being dragged out of the way. The tree was first grubbed around the roots. Then a chain from the roller was attached to the trunk. The road roller took up the slack of the chain and gradually the tree was pulled over and then dragged clear of the work.





COLD PATCH WORK WITH SMALL CONCRETE MIXER

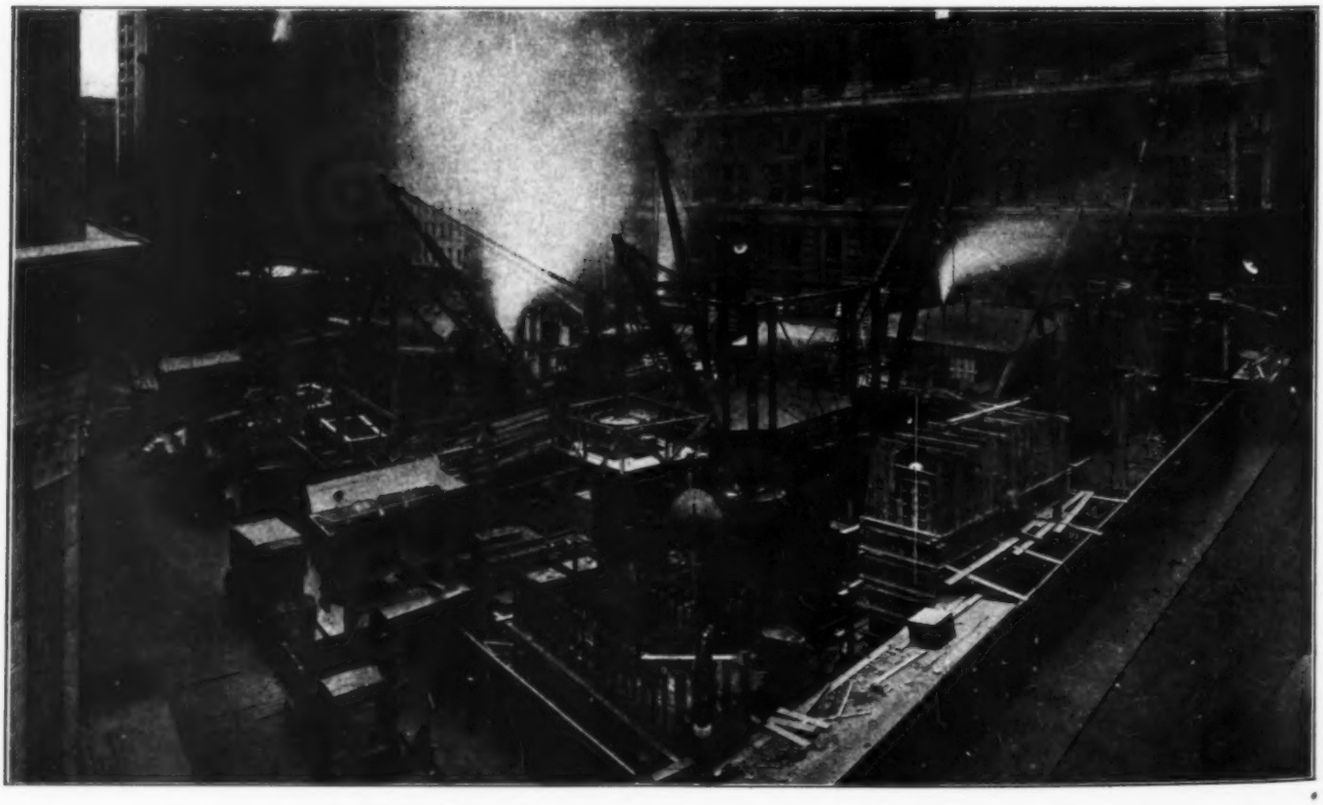
MORE or less doubt has existed as to whether or not a small concrete mixer designed particularly for handling and mixing concrete would mix and discharge cold patch material. The accompanying photograph shows such a mixer which is being used on cold patch work for the Indiana State Highway Department and the foreman and superintendent on this particular job are outspoken in their praise of the manner in which the machine does the trick. It handles the cold patch just as though it had been built for exactly that sort of work.

DIGGING DOWN FOR THE FEDERAL RESERVE

THE photograph below describes more plainly than words the maze of equipment which the Foundation Company of New York is using on the substructure of the new Federal Reserve Bank, a 15-story structure now being constructed at Maiden Lane and Nassau Street, New York City. Prominent in the photograph is the 4-boom steel traveler carrying four 55-ft. steel booms (with 10-ft. extensions) mounted on trucks which travel on rails carried by timber bents. At the far end of the lot a similar traveler may be seen. This traveler, which is 30 ft. square, is kept from being undermined by placing the sills carrying the bents on piles driven by the traveler itself. After piles are driven the derrick travels by lifting the frame bents from behind and placing them in front and moving ahead under its own power. The derricks will be used on the excavation work, which is to be carried 90 ft. below street level, and will also handle the excavation from the caissons as well as place the concrete in the caissons. In the foreground one of the booms may be seen serving one of the air locks. Sand and stone is received by truck at the street level and dumped into bins which charge two 1-yd. mixers. Industrial railway is used to transport the concrete buckets to the derricks.

Included in the Foundation Company's contract was the wrecking of the old structure, the sinking of 34 separate caissons having pneumatic joints, cross-lot bracing and excavating to cellar floor as well as shoring the adjacent buildings and streets. The illustration clearly shows the caissons at various stages. Pig iron is used to sink them and 500 tons may be seen on top of one of the caissons.

The architects are York & Sawyer, and Marc Eidlitz & Son have the general contract. L. R. Craft is superintendent for the Foundation Company.



World Championship in Concrete Road Building

The winner in this contest will be determined as follows:

1. The best day's run will count 20 points.
2. The best 5 days' run will count 30 points.
3. The best 20 days' run in a single calendar month will count 50 points.

This means that when all the returns are in, the best day's run will be credited with 20 points and the others will be compared with it as a standard. For example, if the best day's work reported is 2,000 square yards of pavement averaging 8 inches thick, that record will be good for 20 points. If the next best day's run is 1,950 square yards of 8-inch pavement, that record will be good for 97.5 per cent of 20 points or 19.5 points. The same procedure will be followed in rating the 5-day and 20-day runs.

The sum of each crew's points in the three classes will be the total for that crew, and the crew having the highest number of points will be placed first, the second highest second, and the third highest third.

The winning crew will receive $200 to be divided as follows: one-third to the superintendent, one-third to the foreman and one-third to the other members of the crew.

The winners of second place will receive $125 to be divided in the same manner.

The third prize will be $75, also to be divided, one-third to the superintendent, one-third to the foreman and one-third to the other members of the crew.

There will be no entry fee. All that is necessary is to clip out the following blank, fill it in properly and mail it to Successful Methods on or before December 1, 1921.

There is no limit to the number of crews that one contractor may enter and work done at any time this season will count.

The world's record is at stake!

Has your outfit got the punch to win it?

ALL ENTRIES FOR THE WORLD CHAMPIONSHIP IN CONCRETE ROAD BUILDING MUST BE MADE ON THE FOLLOWING BLANK

1. **Size of mixer** .....
2. **Number of bags of cement per batch** .....
3. **Proportion of cement and sand** .....
4. **Time of mix required by specifications** .....
5. **Number of hours per day** .....
6. **Width and thickness of concrete slab. Give specifications** .....
7. **Best one day's run in feet with date** .....
8. **Best 5 consecutive days' run in feet with dates** .....
9. **Best 20 days' run in any one calendar month in feet with dates** .....

.....

.....

10. **Location of job, giving state, county, name or number of project** .....
11. **Name of state or county engineer in charge** .....
12. **Name of contractor** .....
13. **Name of superintendent in charge** .....
14. **Name of foreman of crew** .....

Cut out and mail before December 1 to Successful Methods, Inc., 141 Centre St., New York City.

B STANDARDIZED MATERIAL-HANDLING MACHINES G

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Performance on the job is the final test of a machine. A growing number of roadbuilders have found by actual use that the Barber-Greene Loader stands up. This year there were more of these machines used than ever before.

The outstanding mechanical features that make the Barber-Greene the leader of its line are:

1. *Crawler Traction. Full length continuous treads 58" x 8" with special design for cleaning the links. Used on all Barber-Greene Loaders for nearly two years.*
2. *Buda 25 H. P. 4-Cylinder Gasoline Engine. Eisemann magneto, Stromberg carburetor, R. W. air washer and Pierce governor.*
3. *Frame of Structural Sections. 3—point suspension of crawlers and transmission. Thorough workmanship throughout.*
4. *Patented Rotary Disc Feeder -- most important feature of all. Will work in ANY bulk material, slip any overload and clean up more thoroughly than can be done by hand shovelers. Used on all Barber-Greene Loaders for five years.*

These features make for good performance on the job under all conditions. Good performance brings re-orders. One recent example of that is the Toronto Transportation Commission, Canadian roadbuilders who first purchased 4 Barber-Greene Loaders, used them in exceptionally hard service and then bought 2 more. Another case is that of the R. F. Conway Co., Chicago who are using 4 machines, having tested 2 with a whole season of work in 1920 before buying the others.

These users and many more like them have learned what Barber-Greene performance is. You should know more about all the features that make this performance possible. A request for a catalog imposes no obligation on you. Write for catalog "B" today.

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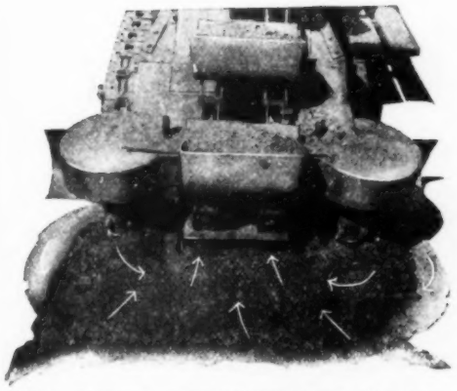
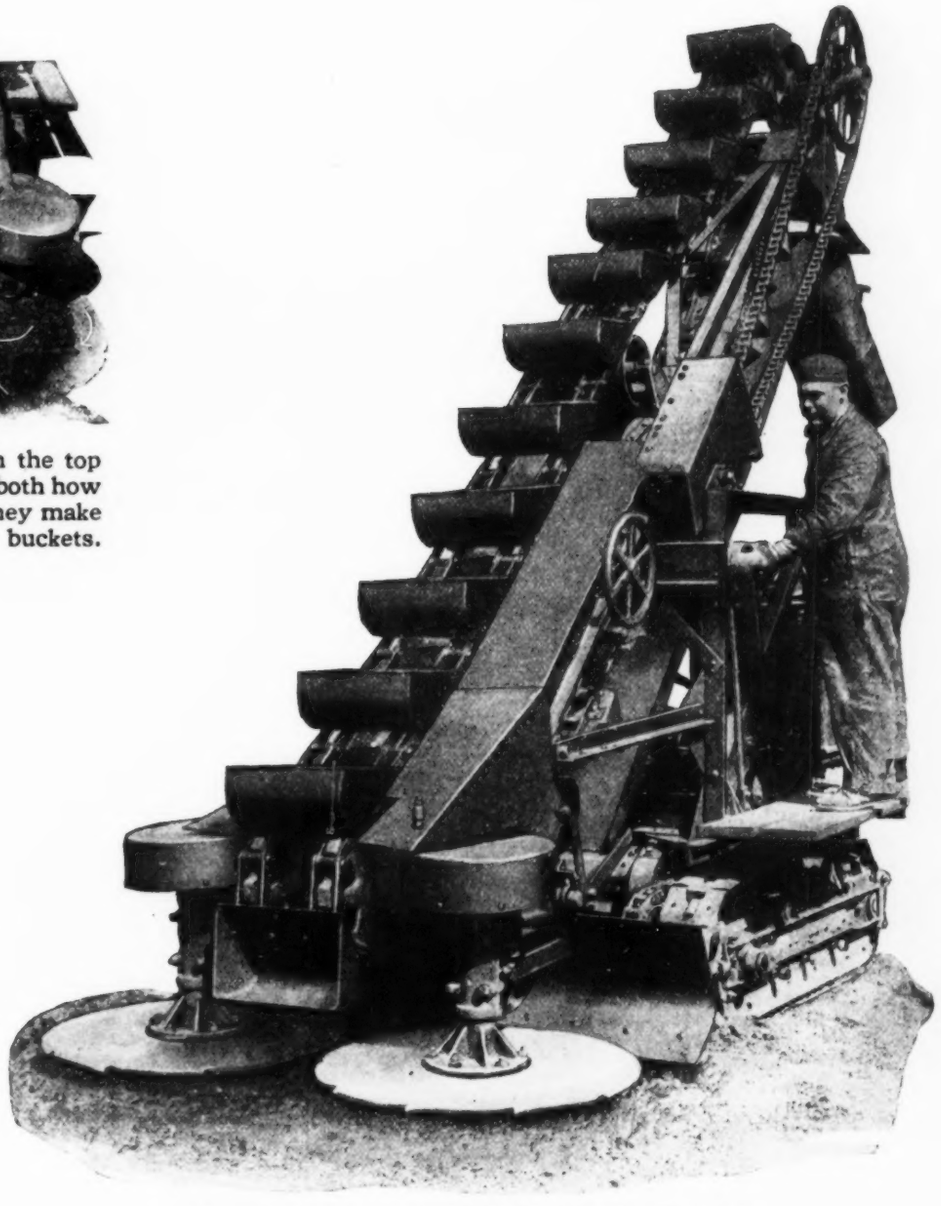
B STANDARDIZED MATERIAL-HANDLING MACHINES G

BEST PERFORMANCE



This picture was taken from the top of the pile. Arrows indicate both how the discs rotate and how they make the material flow to the buckets.



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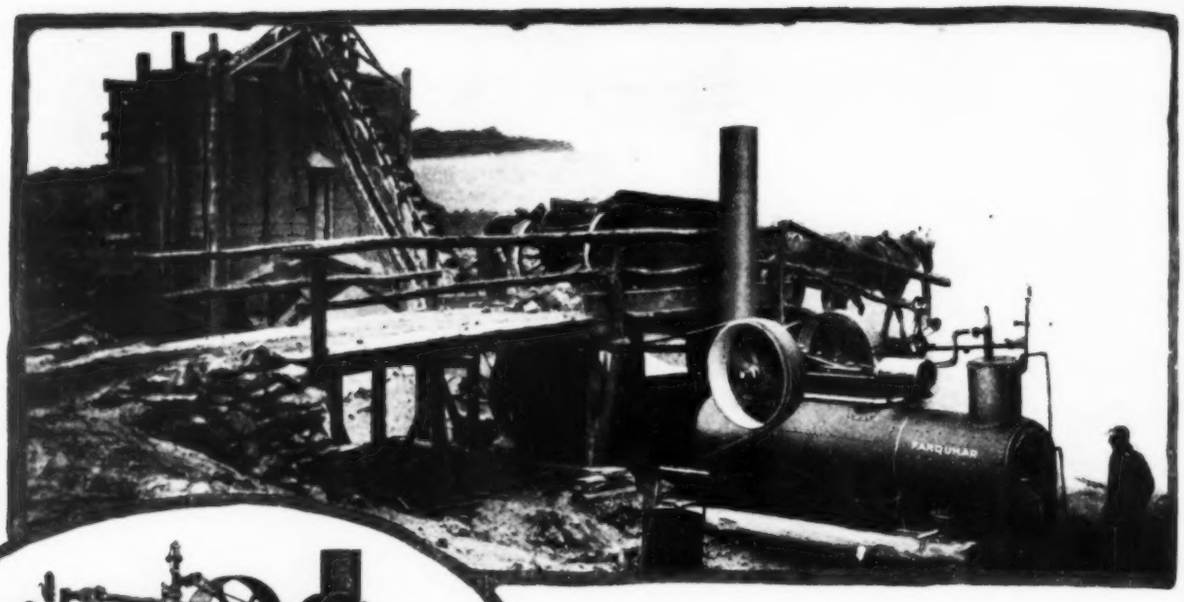
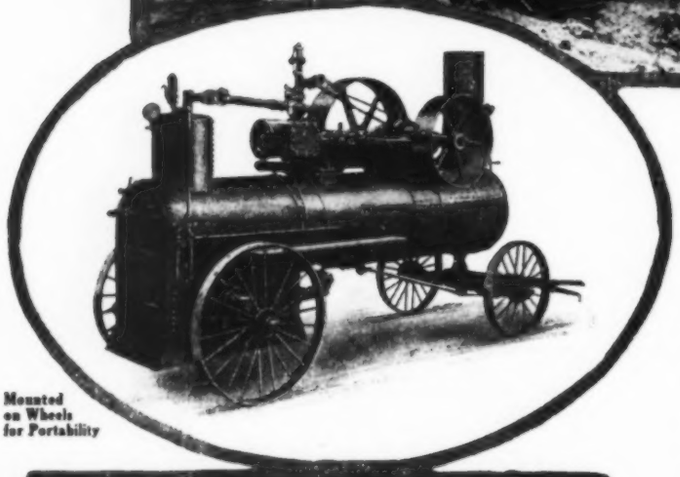
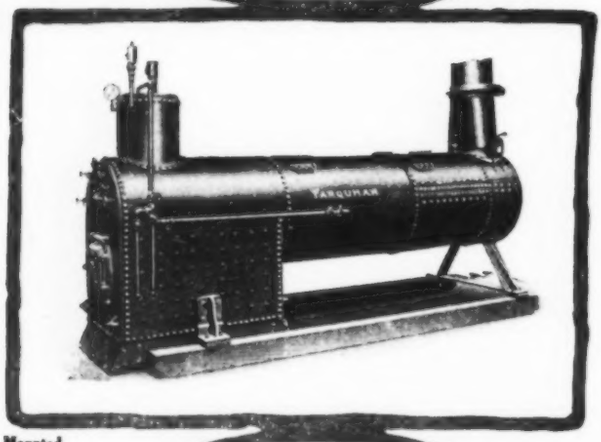
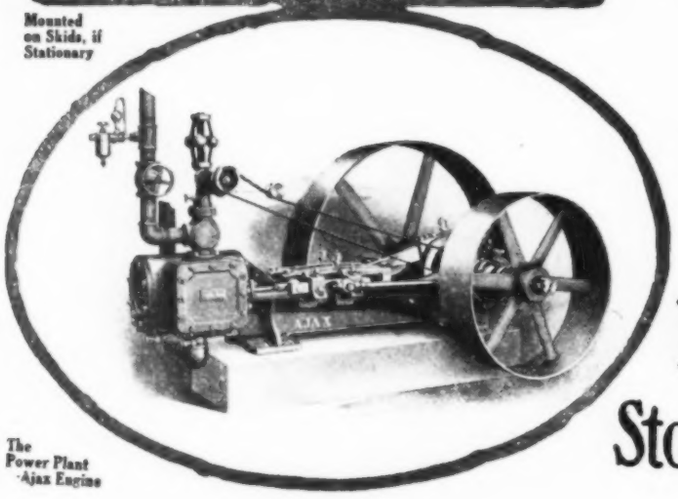




Mounted on Wheels for Portability



Mounted on Skids, if Stationary



The Power Plant Ajax Engine

With the Stone Just Over the Fence

"Waiting for materials" will cause more unfinished roads and more forfeited profits than all other causes combined in this year's tremendous road building program.

And, often, how foolish this cry will be! True, transportation facilities are not adequate, but why ship and then haul—why wait for material?

Speed up road construction!

Save time—make more money!

Road builders, here's the easiest solution you ever knew to the most troublesome problem you ever had. Establish your own quarry and crushing plant. Ten to one, there's stone right alongside of the road you are building.

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